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AUTHOR Federlein, Anne Cairns
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ABSTRACT

The study, involving 15 emotionally (EH), hearing (HH), or physically (PH) handicapped children in segregated preschool special education classrooms, 15 mainstreamed EH, HH, or PH preschoolers, and 15 nonhandicapped preschool peers, analyzed interactions of both handicapped and nonhandicapped children, ecological information on each classroom setting, and nutritional data obtained from parents of each child. Five hypotheses were proposed: (1) in general, the level of play of handicapped preschoolers will be lower than the nonhandicapped peers; (2) there will be a larger number of adult initiated interactions by teachers/aides in the segregated settings than in the mainstreamed settings; (3) there will be more solitary and parallel play in segregated settings than in mainstreamed settings; (4) depending on the category of handicap, the predominant category of play interactions will be varied in the mainstreamed and segregated settings; and (5) Ss without breakfast will exhibit more solitary play than those Ss who ate breakfast. Among findings were that although the nonhandicapped Ss had higher frequency scores in all categories of play, in the practice play category, mainstreamed handicapped preschoolers scored lower in only one instance; and that in the segregated settings during the observations there appeared to be more adult interaction during the free play periods than in the mainstreamed settings. (SBH)

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A STUDY OF PLAY BEHAVIORS AND INTERACTIONS OF PRESCHOOL HANDICAPPED CHILDREN IN MAINSTREAMED AND SEGREGATED SETTINGS

Anne Cairns Federlein, Ph.D.
Assistant Professor
Early Childhood Area
Oakland University
Rochester, Michigan 48063

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A STUDY OF PLAY BEHAVIOR AND INTERACTIONS OF PRESCHOOL HANDICAPPED CHILDREN IN MAINSTREAMED AND SEGREGATED SETTINGS

Mainstreaming preschool handicapped children--what does it mean? What effects will mainstreaming at the preschool level have on later public school education? Educators and parents alike have well-founded fears and apprehension about the federal mandate. Some charge it is a return to yesteryear--to the one-room schoolhouse theory, where every child is educated, regardless of ability. This is a myth. In the past every child was not educated according to his ability. Children with moderate and severe handicaps were frequently excluded from the mainstream of public school education and either kept home or enrolled in a private school.

Historically, children have been kept from a public school education because of handicaps, economic status, or cultural differences. Two legal cases within a thirty-nine year span of time, illustrate the lack of legal rights granted to handicapped persons. In 1919 (Beattie vs. Board of Education of the City of Antigo), a cerebral palsied child with a normal intelligence quotient was denied a public school education based on the decision that

his presence would be too depressing for the teacher and other students. One can attempt to explain this ruling by rationalizing that in 1919 the educational plight of the handicapped child was not understood either in or out of the public school. However, in 1958, only twenty years ago, these injustices were still being committed. A mildly mentally retarded child was institutionalized when the court ruled that the public school could not provide an adequate education and the child's family could not afford a private school education (Department of Public Welfare v. Haas, 1958).

The federal government (P.L. 94-142) and the State of Michigan (P.A. 198) have passed legislation to ensure that all handicapped children between the ages of birth to twenty-five will be educated in the least restrictive environment. The federal guidelines encompass only the ages of three to twenty-one; however, Michigan's act has precedence over the federal legislation and extends the age limits downward to birth and upward to twenty-five. The mainstreaming act, to be implemented across the United States, is mandated to begin in the Fall of 1978.

With adequate funding and cooperation of the federal, state, and local levels of education, mainstreaming has the potential of being the great liberator of the handicapped child, ensuring necessary services and an appropriate education to maximize the child's abilities. Indeed most of

the handicapped children will be liberated from the stigma of a self-contained special education classroom and begin a new era of relating and learning with "normal" peer models in a regular classroom situation. This will be the beginning of integrating handicapped persons, shortly after birth, into the "real" world.

The State of Michigan, because of the national leadership role it has assumed in mainstreaming, is a forerunner in establishing appropriate models for mainstreaming, especially in the preschool area. In fact, the Department of Education is attempting to outline the new certification requirements for teachers of the preschool handicapped child.

Universities are attempting to combine the area of early childhood and special education to train teachers, support personnel and paraprofessionals to work in classes serving these young handicapped children. New graduate and undergraduate programs combine child development knowledge with specific skills, techniques and evaluation. Depending on the category of program there is a wide range of qualifications needed to work with young handicapped children in Michigan. At the present time, in order to work in a Michigan public school preschool handicapped program, certification in a special education area is necessary and early childhood training and experience are desirable. In many federal programs there is no requirement to hire spe-

cial education certified teachers, merely those teachers who had majored in early childhood education. Private programs are not restricted to either, or a combination of, training in special education and early childhood education.

Public school systems across the United States are developing appropriate programs, with the aid of state and federal funds, for all categories of handicapped children. These programs usually contain a parent education component, appropriate support services for the family and transportation for the child. The formats of the model programs are varied and include the following types:

1. Handicapped children from segregated facilities moved to regular schools with self-contained special education classrooms in the same building with nonhandicapped classes.

2. Handicapped preschoolers in a segregated setting integrated with a smaller number of normal preschoolers as peer models.

3. Handicapped children receiving instruction in a regular classroom as well as a special education setting, depending on the students' needs.

4. Handicapped children placed in regular classrooms with additional support services from resource personnel to teachers and children.

5. Homebound programs for the preschool handicapped child (usually birth to two and one-half years) consisting of classes for parents and children, regularly scheduled in the school and home setting.

Although Michigan appears to be one of the most progressive states in the Union, granting educational rights and services to handicapped persons, the public school systems need more successful mainstreaming models, especially for preschoolers. These must be designed and implemented as soon as possible to comply with the federal and state mandates. There are preschool models for all categories of handicapped children in segregated settings, or in home-based programs, but in most areas few preschool children have been mainstreamed into regular preschool settings. One reason is that most of the programs for three, four and five year olds are privately financed, without government funds, and are not mandated to enroll special education children. Although the trend is changing, few public schools have preschool classes for nonhandicapped children, taught by certified early childhood teachers. Isolated private preschool settings and federally funded Head Start Programs are a few options available to mainstream preschool handicapped children. Consequently, the majority of identified special education preschoolers remain in segregated settings, either with children having a variety of handicapping conditions, or just one handicap. When these placements are made, a mainstreamed placement is deferred until kindergarten.

The government has assumed that the integration of handicapped children into nonhandicapped classrooms will

liberate the special education child and give him educational advantages and opportunities not available in the segregated setting. Whether or not this is a valid assumption remains to be tested through future research. Does the interaction with nonhandicapped children benefit the handicapped child socially, emotionally and educationally? Specifically, do preschool handicapped children, indeed, interact and play with nonhandicapped peers in the classroom setting? Are the assumed benefits of mainstreaming really, in fact, present in the classroom?

With the deadline for mainstreaming approaching, educators must organize a successful system. Adequate funding is needed to make mainstreaming a viable route in our democratic educational system, to educate handicapped children in the least restricted environment. A new era for handicapped children is upon us! The legal questions will begin to be answered with the implementation of P.L. 94-142 beginning in the Fall of 1978.

Statement of the Problem

This study was designed to observe the play interactions of handicapped and nonhandicapped children in both segregated and mainstreamed preschool classes. One of the assumptions of the mainstreaming act is that handicapped and nonhandicapped peers will interact in a classroom setting, giving the handicapped child a normal peer model.

However, the available research data on handicapped and nonhandicapped preschoolers, in play settings, has not validated this assumption.

Significance of the Problem

The proposed research is an attempt to explore and describe the various types of play behavior of handicapped children in both segregated and mainstreamed preschool settings. There are few primary studies which have compared the play behavior in both types of settings, that is, segregated and mainstreamed classrooms. K. Eileen Allen, of the University of Kansas, and Michael Guralnick, of Ohio State University, have studied play behaviors of handicapped children in segregated settings and in reversed mainstreamed classrooms. Although their studies are continuing, the results are inconclusive and contradictory at this time.

Allen's (1977) studies have revealed that specific curriculum manipulations are needed in the classroom to encourage the nonhandicapped peers to interact and play with the handicapped peers consistently. Her settings have included a wide range of handicaps, focusing on the physically impaired.

Guralnick's (1978) early studies are based on the observation that preschool handicapped children do not interact in play. His studies have indicated that with

teacher-directed group dynamics, nonhandicapped preschoolers interact in structured play situations with mentally impaired peers. However, data collected in late 1977 do not confirm the early findings.

It is therefore important that baseline studies on the interactions of handicapped preschoolers in play settings and research on the play interactions of both handicapped and nonhandicapped peers in mainstreamed settings begin. The organization of this study can be summarized as follows:

1. The study described the various Parten Play categories and Piaget types of play behavior exhibited by preschoolers who are emotionally impaired, physically impaired and hearing impaired, in segregated settings.

2. The study describes the various Parten Play categories and Piaget types of play behavior exhibited by preschoolers who are emotionally impaired, physically impaired and hearing impaired in mainstreamed settings.

3. The study describes the various Parten Play categories and Piaget levels of play behavior exhibited by nonhandicapped preschoolers who are in mainstreamed settings.

4. The study provides information on adult initiated play and whether the segregated or mainstreamed setting uses the greatest amount of adult initiated play.

5. The study provides nutritional information on each child. The data collected will provide information on play behavior of children when compared to their dietary intake.

Hypotheses

The study was designed to test these hypotheses:

Hypothesis 1: In general, the level of play of handicapped preschoolers will be lower than the nonhandicapped preschoolers.

Hypothesis 2: There will be a larger number of adult initiated behaviors by teachers/aides in the segregated settings, than in the mainstreamed settings.

Hypothesis 3: There will be more solitary and parallel play in segregated settings than in mainstreamed settings.

Hypothesis 4: Depending on the category of handicap, emotional impairment, physical impairment or hearing impairment, the predominant category of play interactions will be varied in the mainstreamed and segregated settings.

Hypothesis 5: Subjects without breakfast will exhibit more solitary play than those subjects who ate breakfast.

Assumptions and Limitations

These assumptions were recognized in the study:

1. The age and developmental range of the handicapped and nonhandicapped preschool children consists of three, four, and five year olds, with varying abilities and developmental levels.

2. The instruments used provide data that reflect the Parten categories and Piaget types of play behaviors of handicapped and nonhandicapped preschoolers, as well as child or adult initiated play.

3. It is recognized that instruments other than Parten categories and Piaget levels of play and the breakfast checklist measure information on the preschool settings and nutrition.

4. All preschool sites are developmentally based. That is, the curriculums incorporate free play during the day and were designed to meet individual needs.

The following limitations restrict the findings of this study to the population studied:

1. Mainstreaming preschool handicapped children is a new concept; therefore sites with children in the identified categories were difficult to match to the segregated preschool settings.

2. There is sole reliance on observation by the investigator.

RESEARCH DESIGN AND METHOD

Design and Method

The design of this study is descriptive and includes an analysis of play interactions of both handicapped and nonhandicapped children, ecological information on each classroom setting, and nutritional data obtained from the parents of each subject. A schematic design of the study is shown in Figure 1. Suitable subjects and settings were identified and data were collected and treated in a manner appropriate to small sample studies.

Data Gathering Instruments

Three instruments were used to collect data.

(1) Instrument A consisted of a checklist describing the physical setting of each preschool site. The evaluation of each classroom included the name of site, type of program, location, the amount of equipment and its availability to students, financing of the program, target population, philosophy of the program, racial composition,

	Mainstreamed Settings	Segregated Settings
Handicapped	Emotionally Impaired Preschoolers 1. 2. 3. 4. 5.	Emotionally Impaired Preschoolers 1. 2. 3. 4. 5.
	Physically Impaired Preschoolers 1. 2. 3. 4. 5.	Physically Impaired Preschoolers 1. 2. 3. 4. 5.
	Hearing Impaired Preschoolers 1. 2. 3. 4. 5.	Hearing Impaired Preschoolers 1. 2. 3. 4. 5.
Nonhandicapped	Nonhandicapped Settings 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.	

Fig. 1.--Settings

age levels of children and handicaps. Other items included the length and structure of the daily curriculum, qualifications of staff and the adult-child ratio. The teacher was also asked if, on the day of the observation, it were a typical day in the classroom; that is, one free of scheduled extra activities. This was completed after the observation at each site. The instrument was designed by Dr. Doris Sponseller, Associate Dean of the School of Education, Oakland University, and modified by the researcher for this study.

(2) Instrument B recorded all play actions of handicapped and nonhandicapped subjects during the forty-five minutes of free play time in each class. It also identified whether the play action was child-initiated (CI) or adult-initiated (AI). The thirty handicapped preschoolers (fifteen children from segregated classes; fifteen children from mainstreamed settings) were identified as emotionally impaired, physically impaired or hearing impaired and certified special education students according to the Michigan Certification Code. Fifteen nonhandicapped preschoolers were randomly selected in the mainstreamed classes. Play frequencies in the play categories were recorded to investigate interactions in the nonhandicapped population. The instrument was designed by Dr. Doris Sponseller and has been used in numerous play observations for

research purposes in the toddler, preschool and preprimary programs in the Matthew Lowry Early Childhood Center, Oakland University. It has been used extensively for data collection by the Oakland University Early Childhood faculty and graduate students. Instrument B combined Parten's categories of play with Piaget's levels of play behavior. The instrument identified each category of play, i.e., onlooking, solitary, parallel, associative and cooperative, as well as the Piaget levels of practice play, symbolic play, or play with games and rules.

(3) Instrument C identified the dietary intake of each subject recorded after each observation in the classroom. The data were collected by phone surveys of parents on the day of each observation. Sample of the instrument is in Appendix A.

Subjects and Settings

Forty-five preschool children were chosen for the study. Fifteen handicapped children, in segregated preschool special education classrooms, were certified, following the Michigan Certification Code, as emotionally impaired, physically impaired and hearing impaired. Fifteen mainstreamed handicapped preschoolers, also certified, according to the Michigan Certification Code, in the three above-mentioned special education categories and fifteen

nonhandicapped preschool peers comprised the population. The nonhandicapped subjects were randomly selected from all of the nonhandicapped subjects in the identified mainstreamed preschool settings.

The segregated preschool classrooms for emotionally impaired, physically impaired and hearing impaired preschool subjects were all located in the Irving Diagnostic and Learning Center in the Pontiac Public School District.

The mainstream preschool classes were located primarily in Oakland County and included at least one preschool handicapped child identified as emotionally impaired, physically impaired or hearing impaired. The mainstreamed programs were in both private and public school settings and there were five handicapped children in each category observed in the various settings.

The nonhandicapped sample of fifteen preschoolers was randomly selected from the total population enrolled in the mainstreamed settings. The randomly selected sample gave an overview of play interactions of nonhandicapped preschoolers in mainstreamed settings.

General Plan of the Study

Instruments A and B were tested in two pilot situations on August 7 and 8, 1978, which were not included in the sample. The pilot tests were conducted in a segregated preschool handicapped class of emotionally impaired chil-

dren, not selected for the study, and in a mainstreamed preschool setting, also not included in the research.

As a result of these two tests, it was determined that the researcher should use an observation room, whenever possible, to collect data. This avoids contact with the subjects and does not change the behaviors of the subjects during the observation. As a result of the pilot situations it was realized that the subjects needed identification for the researcher, thus names were taped on the backs of each subject. Observations were made every five minutes for the forty-five minute free play period. Thus each subject had nine recorded observations during each session. Because preschool children change activities frequently, it was determined, as a result of the pilot tests, that observations made every three minutes would better reflect the play frequencies of the subjects. Thus Instrument B was revised to record observations of each subject every three minutes for fifteen seconds for the forty-five minute free play period, resulting in fifteen, rather than nine, recordings.

After modification, Instrument B was used by the investigator during the forty-five minute free play period in three preschool segregated and six preschool mainstreamed settings. Observations of the play activity of each subject was recorded. For example, the category of play (according to Parten) was recorded. These are onlooking,

solitary, parallel play, associative or cooperative play. Also the level of play, according to Piaget's definition was recorded. These are practice play, symbolic play and games with rules. Thus, with the exception of the onlooking category, a subject was recorded after a fifteen second observation in two areas every three minutes. The subjects were observed in rotation at the beginning of each three-minute period. A total of fifteen observations was recorded for each subject.

Each subject was observed twice, one week apart, during the last two weeks in September, 1978 and the first two weeks in October, 1978. The calendar of observations is included in the Appendices. If on the day of the observation there were unusual disruptions or excessive absences, it was declared an atypical day in the classroom. A third visit would then be scheduled. If the teachers assured the the investigator that the classroom had no unusual disruptions or excessive absences, then the observation was made.

Instrument A was revised to include an overall rating of the developmental and educational focus of each setting and the philosophy of each classroom.

Conditions for the study were:

1. Before the observation, the teacher was questioned as to whether or not the classroom would have unusual disruptions or if there were excessive absences.

2. The investigator entered the classroom as unobtrusively as possible, with no recognition from the teachers or aides, or explanation to the students, and collected the data in an observation room with a two-way glass, if available. If there were no observation area, the investigator chose an isolated area in the room to record the data.

3. The investigator avoided eye contact or any verbal interaction with subjects, if data were collected in the classroom.

4. The investigator alone collected data, using Instrument B, having validated the tool earlier in two pilot situations with a research assistant at Oakland University. Ninety-seven percent reliability was established.

5. After the free play observation the investigator used Instrument A to record the physical properties of the classroom. Also the characteristics of the staff were recorded in Instrument A.

6. The investigator, after leaving the setting, then phoned the parent of the subjects and used Instrument C to record the dietary intake of the subjects at breakfast. If the parent could not be contacted, the investigator followed up with a phone call in the evening.

Treatment of the Data

After the observations, using Instruments A and B, and the dietary information recorded on Instrument C, the data were coded. Because of the small sample size, descriptive statistics were used in the analysis.

ANALYSIS OF THE DATA

The results for each of the hypotheses are discussed with complete data displayed in the tables. Frequency distributions were used to describe the data collected and T-tests were used to test for significance of differences in the data in this descriptive study.

Hypotheses

Hypothesis One

> In general, the level of play of handicapped preschoolers will be lower than the nonhandicapped preschoolers

Each level of play was tested independently for both handicapped and nonhandicapped preschoolers. At all play levels the nonhandicapped subjects had higher mean scores that the handicapped subjects. However, on a frequency distribution of the Parten Play Categories both groups of subjects, handicapped and nonhandicapped, showed normal patterns.

All of the play categories used in the Parten instrument were tested, using a frequency distribution to

organize the data to find the mean and a T-test to determine the significant difference of the mean between two samples, that is of handicapped and nonhandicapped students. The degrees of freedom were computed using the Statistical Package for Social Sciences formula which is used on independent groups with unequal variances. Therefore the degrees of freedom do not reflect whole numbers.

Although the data of the nonhandicapped subjects indicated higher play scores for each of Parten's play categories (onlooking, solitary, parallel, associative and cooperative), only in the parallel play category did the data reflect a significant difference between the nonhandicapped and handicapped scores at the .05 level. The collected data indicated higher mean scores of the nonhandicapped subjects over the handicapped subjects, but only in parallel play category was the score significantly higher. The cumulative mean scores reflect the mean of the frequency scores of all the play observations of the fifteen individuals in the nonhandicapped group and the thirty handicapped individuals in the handicapped category (see Figure 2 and Figure 3).

The parallel play category had the greatest range of mean scores. The nonhandicapped group had a play complexity mean score of 8.66, while the handicapped group had a mean score of 6.43. When a T-test was administered, in the parallel play category a difference for the two

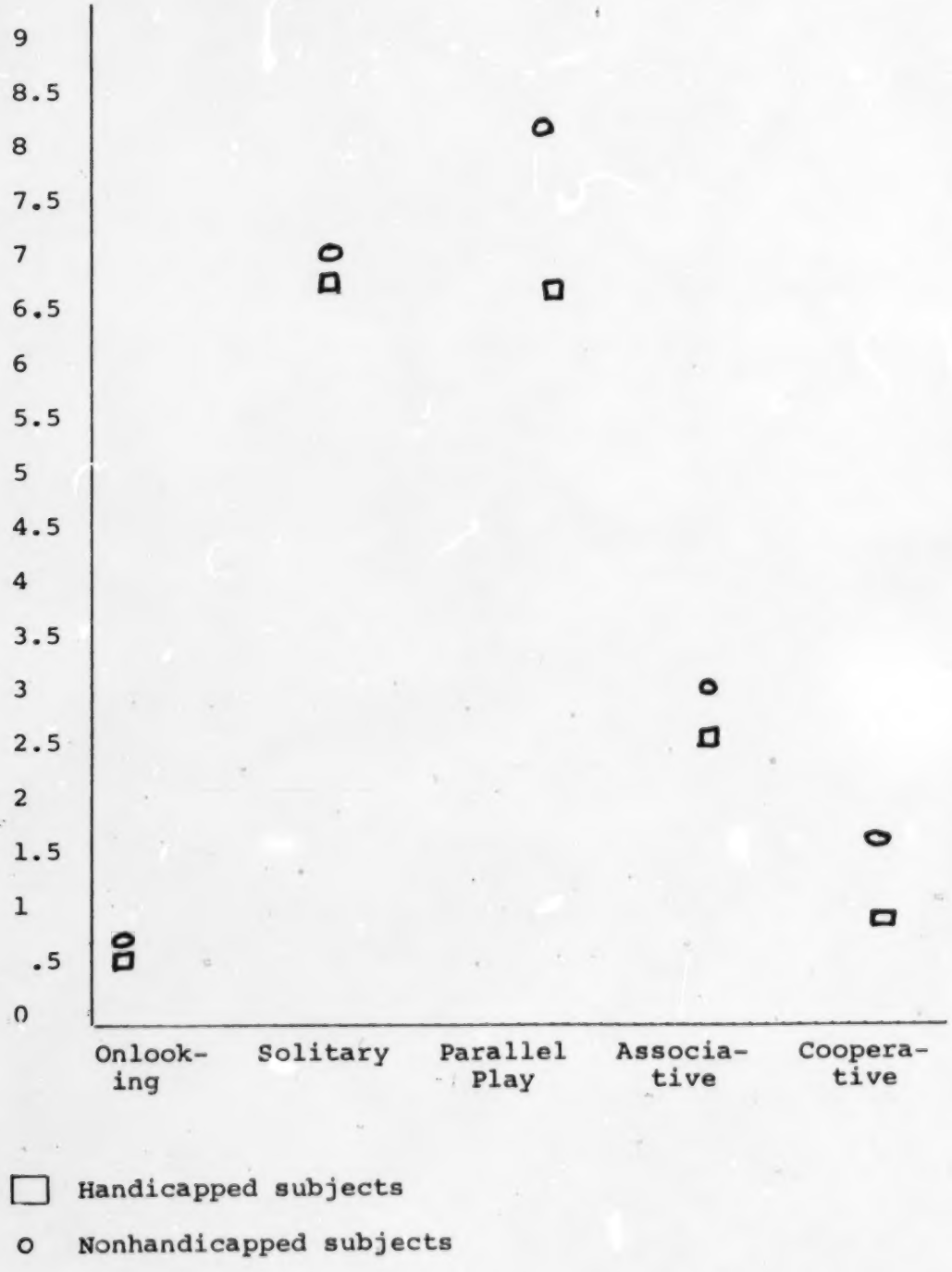

Fig. 2.--Total Play Complexity Scores of All of the Frequencies of Play in All the Parten Play Categories

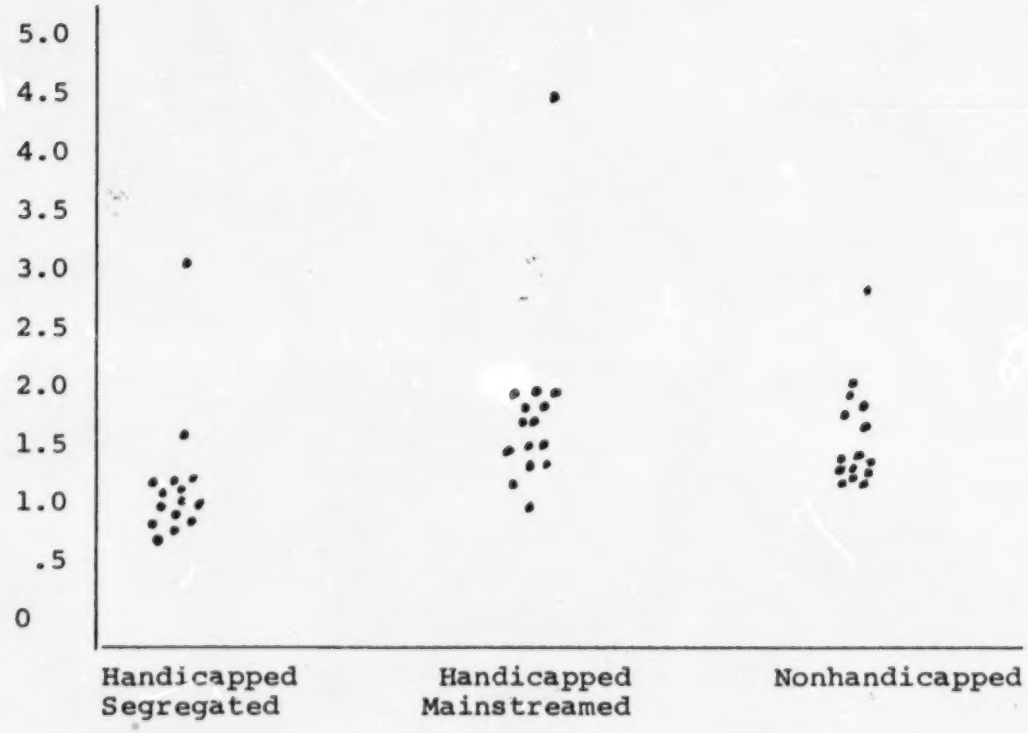

Fig. 3.--Cumulative Mean Scores of All of the Frequencies of Play in Parten Play Categories of Handicapped Segregated, Handicapped Mainstreamed and Nonhandicapped Preschoolers

groups was observed which is statistically significant at the .05 level (see Table 2).

Observational data on the Piaget Level of Play Test were collected on the nonhandicapped and handicapped subjects. Subjects in both categories had high frequency scores in the practice play category. The other categories, symbolic play and play involving games with rules, had lower frequency scores in these categories. Table 3

TABLE 2

PLAY LEVELS OF HANDICAPPED AND NONHANDICAPPED PRESCHOOLERS ACCORDING TO PARTEN'S PLAY CATEGORIES

Group 1--15 individuals nonhandicapped
Group 2--30 individuals handicapped

Variable	Number of Cases	Cumulative Mean of Observations	S.D.	DF	Two Tail Prob.
Onlooking					
Group 1	15	0.60	9.91	40.81	0.45
Group 2	30	0.33	1.47		
Solitary					
Group 1	15	7.06	4.07	29.53	0.86
Group 2	30	6.83	4.30		
Parallel					
Group 1	15	8.66	2.92	40.19	0.05*
Group 2	30	6.43	4.56		
Associative					
Group 1	15	3.46	3.64	21.10	0.24
Group 2	30	2.20	2.55		
Cooperative					
Group 1	15	1.20	1.82	25.08	0.51
Group 2	30	0.83	1.59		

*Significant at .05 level.

TABLE 3

FREQUENCY SCORES OF PIAGET'S LEVELS OF PLAY OF HANDICAPPED AND NONHANDICAPPED PRESCHOOLERS IN MAINSTREAMED AND SEGREGATED SETTINGS

	Play Category		
Subjects	Practice	Symbolic	Games with Rules
Handicapped			
Mainstreamed	304	16	2
Segregated	259	18	0
Nonhandicapped	305	30	3
Totals	868	64	5

shows the frequency scores in Piaget's three play levels, practice, symbolic and games with rules. Although the nonhandicapped subjects had higher frequency scores in all three categories, in the practice play category, mainstreamed handicapped preschoolers scored lower in only one instance.

Hypothesis Two

> There will be a larger number of adult initiated interactions by teachers/aides in the segregated settings than in the mainstreamed settings

Adult initiated play was scored on the Parten Play Categories and Levels of Play Test. The mean number of adult initiated play instances for the frequency distribu-

tion of the segregated classrooms was 6.8, while the number of adult initiated play instances for the mainstreamed classrooms had the lowest frequency of adult initiated play with a mean score of 3.86. Therefore, it appears that a greater number of adult initiated play interactions occur during free play in the segregated settings than in the mainstreamed settings. There was no significant difference between the mean scores, however. Instrument B in Appendix A was used to collect the data.

TABLE 4

ADULT INITIATED PLAY INTERACTIONS IN SEGREGATED AND MAINSTREAMED SETTINGS

Group 1--Mainstreamed Settings
Group 2--Segregated Settings

Adult Initiated Play	Number of Cases	Mean	S.D.	DF	Two Tail Prob.
Group 1	15	3.8	4.8	27.21	0.08
Group 2	15	6.8	4.0		

Hypothesis Three

> There will be more solitary and parallel play in segregated settings than in mainstreamed settings

The mean number of solitary and parallel play instances on the Parten Categories of Play Test were used

to determine the mean score in each play catetory.

The mean score of solitary play at 8.6 in segregated settings was significant at the .01 level and higher than the mean score of 5.0 in the mainstreamed settings. However, in the parallel play category, the mainstreamed settings had a higher mean score (9.6) than the segregated settings (3.2). Although the scores were not significant in the parallel play category, if real differences exist, the differences indicated by this study would be in the direction of a higher frequency of solitary play in the segregated settings and a higher frequency of parallel play in the mainstreamed settings.

TABLE 5

FREQUENCY OF SOLITARY AND PARALLEL PLAY IN SEGREGATED AND MAINSTREAMED SETTINGS IN THE PARTEN CATEGORIES OF PLAY

Group 1--Mainstreamed Settings
Group 2--Segregated Settings

Variable	Number of Cases	Mean	S.D.	DF	Two Tail Prob.
Solitary Play					
Group 1	15	5.0	3.2	25	0.01*
Group 2	15	8.6	4.5		
Parallel Play					
Group 1	15	9.6	3.3	27	0.00
Group 2	15	3.2	3.1		

*Significant at the .01 level.

Instrument A in the Appendices was used to evaluate all the mainstreamed and segregated sites in the areas of location of site, the amount and availability and use of equipment in the classroom, use of classroom space, type of program, target population, including race, age and handicap; structure and length of school day, an overall rating of the developmental and educational focus of the program, qualifications of staff and adult-child ratio in each site. When the play interactions of children are studied, it is helpful to compare the ecology of the classrooms to try to determine if there is a relationship between the setting and a young child's play interaction with his peers. Further study of the effect of the ecology of the classroom on young children is needed.

Nevertheless, interesting similarities and differences in the chosen segregated and mainstreamed sites were recognized when the data from Instrument A were computed. Four segregated classrooms were chosen for the study. They were the emotionally, hearing and physically impaired classes in the Irving Diagnostic and Learning Center in the Pontiac Public Schools, and the hearing impaired class in the Southfield Development Center in the Southfield Public Schools. The mainstreamed settings were more difficult to locate and were primarily identified in preschool centers in local universities and colleges. They were the University of Michigan-Dearborn Preschool

Center in Dearborn; the Wayne State University Preschool Laboratory School housed in the Jeffries Housing Project, in Detroit; the Mercy College Child Care Program, in Detroit; the preschool program at the Matthew Lowry Early Childhood Center at Oakland University, in Rochester; a Headstart classroom at the Southfield Development Center; and the Clarkston Preschool, a privately owned center. There was a wide geographical area in the study, including two inner city programs (at Mercy College and Wayne State University), two suburban settings (the Southfield and Pontiac sites); an outer city setting at Oakland University and a rural site in the Clarkston Preschool. The rural setting was self-supporting and was housed in a church, while the other classrooms were in public school buildings, with the exception of the Mercy College program which was supported by tuition from parents and a small stipend from the College.

The equipment in general in all the sites was new, attractive and usually used often. Two areas that generally received low ratings in sites were science and outdoor equipment, while the areas of dramatic play, small muscle activities, books, art, perceptual activities, and sand and water tables generally scored high in both the amount and availability and use of the equipment.

The income level of the students was mixed and the classrooms had a multi-racial composition in four of the

settings; biracial in three classrooms and one race (Caucasian) at the remaining three sites. The age levels served were from two to five years and six sites served a combined population of both handicapped and nonhandicapped students. The school day usually lasted three to five hours and the structure of the programs ranged from very rigid to little structure, with the segregated special education classrooms employing the greatest amount of structure.

All the mainstreamed and segregated settings in this study employed curriculums that centered on the individual developmental levels of each child in the cognitive, social-emotional, language and fine and gross motor areas. Each setting incorporated both free play and teacher directed activities in the daily schedule. Thus, each child was given an opportunity to initiate, explore, manipulate and practice skills in his environment with a minimum of adult intervention during free play. At other times during the day, the teacher directed learning activities. Nevertheless, certain differences in the mainstreamed and segregated classrooms were noted when the survey of the sites was made.

For example, mainstreamed sites, in general, had outstanding materials in dramatic play, art, sand and water play in addition to cognitive and readiness materials, and the children were able to use these facilities which were

readily available. A developmentally based curriculum was evident.

The segregated sites appeared to have fewer creative arts materials and more readiness and perceptual activities. The curricula appeared to be therapy-based, that is every activity based on a therapeutic need of the child. If the creative and play materials were in the segregated room, often the children did not have access to the materials during the free play periods. In the ecology of the classrooms, the segregated sites appeared to follow the traditional classroom approach in rigid scheduling and grouping of children, while the mainstreamed settings utilized the open classroom philosophy of children working at centers at their own pace. Lower teacher-student ratios, often of two adults to five or six children prevailed, at the segregated sites while one adult to over five children was the ratio in the mainstreamed classrooms.

With respect to the qualifications of the staff at all the centers, seven teachers had a master's degree, while four additional teachers are in the process of completing master's degrees. All of the teachers in the segregated settings were certified in special education and completing master's degrees in early childhood. In the mainstreamed settings, five head teachers had master's degrees and one teacher had a bachelor's degree in early childhood. All of the teachers had extensive experience with

young children with an overall average of five years of teaching. Most of the paraprofessionals in the mainstreamed sites had bachelor's degrees, while the aides in the segregated settings were high school graduates. All the aides had a background of working with young handicapped and/or nonhandicapped children.

Mainstreamed handicapped preschoolers were difficult to locate, especially those in the emotionally impaired category. In southern Oakland County it appears that handicapped preschoolers are mainstreamed in a public school kindergarten more often than at the preschool level. This could be due to lack of public school preschool facilities in the schools. As a result, the mainstreamed children identified in this study were located in college and university child care settings and only one private preschool. Although the children had been identified as handicapped, in all but two instances the parents opted for a full-time program in a mainstreamed preschool setting, rather than a segregated special education program in the public schools. The exception to this was a physically impaired child placed in the Clarkston Preschool by a county agency, until a preschool special education program was identified, and another physically impaired youngster who attended a segregated setting at the Crippled Children's Society, in Detroit, each morning for therapy and the Wayne State University Pre-

school Laboratory School each afternoon. The parent insisted on this arrangement for the child and reported it was done reluctantly by the staff at the segregated setting.

In the segregated settings during the observations there appeared to be more adult interaction during the free play periods than in mainstreamed settings. Free play time in the preschool setting is a time for the child to explore and manipulate the environment at his own pace and using his own cognitive style. In the mainstreamed settings, the adults appeared to be facilitators during this time; that is, arranging the environment to encourage the child to learn from his active participation in various activities. In the segregated settings the teachers appeared to be directors of the handicapped child's learning experiences, even in the free play periods. This could interfere with the child's manipulation of his environment and certain learning experiences. There appears to be a different philosophical approach by the teachers in the mainstreamed and segregated settings in this study which needs further exploration.

Some of the tables in the Appendices record the mean score of all the frequency scores in each category in Instrument B and show the difference in the mean scores between the mainstreamed and segregated sites.

Hypothesis Four

> Depending on the category of handicap, emotional impairment, physical impairment or hearing impairment, the predominant category of play interactions will be varied in the mainstreamed and segregated settings

The Parten Categories of Play Test was used to collect the frequency score in each category of play. A mean score of each frequency distribution in each category of play and on each group of handicapped children was obtained. The groups of handicapped children were: emotionally impaired preschoolers in mainstreamed and segregated settings; hearing impaired preschoolers in mainstreamed and segregated settings; and physically impaired preschoolers in mainstreamed and segregated settings. There is a total of six groups with five children in each group.

Overall, the emotionally impaired subjects in the segregated settings had a greater mean score of 1.6 on solitary play than other impaired subjects in both segregated and mainstreamed settings. In the other four categories of Parten's social play (onlooking, parallel, associative and cooperative), the hearing impaired mainstreamed subjects had the highest mean score in onlooking play, as well as the cooperative play category. The physically impaired subjects had the highest mean score of frequency of play in the parallel play category and the main-

TABLE 6

MEAN SCORES OF FREQUENCIES OF PLAY INTERACTIONS IN THE PARTEN CATEGORIES OF PLAY BY CATEGORIES OF IMPAIRMENT IN MAINSTREAMED AND SEGREGATED SETTINGS

Group 1--Emotionally Impaired Mainstream Subjects
Group 2--Emotionally Impaired Segregated Subjects
Group 3--Hearing Impaired Mainstream Subjects
Group 4--Hearing Impaired Segregated Subjects
Group 5--Physically Impaired Mainstream Subjects
Group 6--Physically Impaired Segregated Subjects

Variable	Number of Cases	Mean	Variable	Number of Cases	Mean
Onlooking			Associative		
Group 1	5	0.0	Group 1	5	4.4*
Group 2	5	0.1	Group 2	5	2.2
Group 3	5	1.6*	Group 3	5	3.2
Group 4	5	0.9	Group 4	5	1.7
Group 5	5	0.0	Group 5	5	2.8
Group 6	5	0.0	Group 6	5	2.7
Solitary			Cooperative		
Group 1	5	5.6	Group 1	5	1.4
Group 2	5	8.7*	Group 2	5	1.2
Group 3	5	4.2	Group 3	5	1.6*
Group 4	5	6.5	Group 4	5	0.8
Group 5	5	5.2	Group 5	5	1.4
Group 6	5	5.3	Group 6	5	1.0
Parallel					
Group 1	5	9.4			
Group 2	5	5.3			
Group 3	5	9.4			
Group 4	5	6.4			
Group 5	5	10.2*			
Group 6	5	7.6			

*Highest $\bar{x}$ score of the frequency of play interactions in each category of handicapped subjects.

streamed emotionally impaired subjects had the highest mean score in the frequency of play in the associative play category.

In four out of the five categories of play, with the exception of solitary play, the handicapped subjects in mainstreamed settings had a higher mean score of frequency of play interactions than the subjects in segregated settings. Although the results were not significant, if real differences exist, the difference indicated by this study suggest it would be in the direction of handicapped children in mainstreamed settings having a higher frequency of play interactions than do the handicapped children in segregated settings.

Hypothesis Five

> Subjects without breakfast will exhibit more solitary play than those subjects who ate breakfast

Of the thirty handicapped subjects, according to data on the breakfast checklist, twenty-five handicapped subjects ate breakfast during the two periods of data collection, in September and October, 1978. Five handicapped subjects on the two data collection days ate no breakfast. Among the fifteen nonhandicapped subjects, thirteen nonhandicapped subjects ate breakfast on the two test days and two nonhandicapped subjects had no nutritional intake at breakfast on the two observation days.

Frequency distributions were computed on the Parten Play Categories for all of the subjects. Mean scores at the frequency of play interactions in each play category were then determined for each subject in the study. The subjects were divided into four groups: handicapped with breakfast, handicapped with no breakfast, nonhandicapped with breakfast, and nonhandicapped with no breakfast. In the Solitary play categories for both the handicapped and nonhandicapped subjects, who had no nutritional intake at breakfast, the mean scores of the frequency of play interactions were lower than for those handicapped and nonhandicapped subjects who had breakfast (nonhandicapped--no breakfast, mean score 7.61; handicapped--no breakfast, mean score 4.8 as compared to handicapped--breakfast, 7.24).

The hypothesis is unsupported. That is, it was hypothesized that subjects with no breakfast would display solitary play, while the data collected reflect that subjects who had a nutritional intake at breakfast demonstrated a higher mean score of frequency of solitary play.

Among the nonhandicapped subjects, those who ate no breakfast had the highest mean scores of frequency of play interactions in the parallel and associative play categories with a 5.65 overall mean score in each category. In the solitary play category there was a significant difference between the mean scores of the frequency of play interactions at the .01 level between the nonhandicapped

TABLE 7

SIGNIFICANCE OF BREAKFAST ON PLAY LEVELS OF NON-HANDICAPPED PRESCHOOLERS USING THE PARTEN CATEGORY OF PLAY

Group 1--Nonhandicapped subjects--no breakfast
Group 2--Nonhandicapped subjects--breakfast

Variable	Number of Subjects	Mean	S.D.	DF	Two Tail Prob.
Onlooking					
Group 1	2	0.0	0.0	12.0	0.02**
Group 2	13	0.6	0.9		
Solitary					
Group 1	2	3.5	0.7	11.8	0.01*
Group 2	13	7.6	4.1		
Parallel					
Group 1	2	5.6	5.6	1.0	0.62
Group 2	13	2.4	2.4		
Associative					
Group 1	2	5.6	5.6	1.1	0.92
Group 2	13	3.5	3.5		
Cooperative					
Group 1	2	0.0	0.0	12.0	0.02**
Group 2	13	1.8	1.8		

*Significant at .01 level.
**Significant at .02 level.

subjects who ate no breakfast and those who ate breakfast. According to the data, the nonhandicapped subjects who had no breakfast had a higher frequency of play interactions in the parallel and associative play categories with classmates, than did the nonhandicapped subjects who ate breakfast. Those who had breakfast had the highest mean scores

TABLE 8

SIGNIFICANCE OF BREAKFAST ON PLAY LEVELS OF HANDICAPPED PRESCHOOLERS USING THE PARTEN CATEGORY OF PLAY

Group 1--Handicapped subjects--no breakfast
Group 2--Handicapped subjects--breakfast

Variable	Number of Subjects	Mean	S.D.	DF	Two Tail Prob.
Onlooking					
Group 1	5	0.0	0.0	24.0	0.22
Group 2	25	0.0	1.6		
Solitary					
Group 1	5	4.8	2.3	10.8	0.10
Group 2	25	7.2	4.5		
Parallel					
Group 1	5	5.4	4.4	5.8	0.59
Group 2	25	6.6			
Associative					
Group 1	5	3.0	3.0	5.1	0.53
Group 2	25	2.0	2.4		
Cooperative					
Group 1	5	2.8	2.9	4.1	0.15
Group 2	25	0.4	0.8		

in the play frequencies in the solitary and cooperative categories.

The handicapped subjects with breakfast had the lowest mean of the frequency scores of play interactions in parallel play (5.4) and solitary play (4.8). The mean score of the frequency of the associative play category

was 2.0, lower than the mean score of handicapped subjects with no breakfast. In the Parten play categories (associative and cooperative) involved with play interactions with classmates, the handicapped subjects with no breakfast had higher mean scores of the frequencies of play than the handicapped subjects who ate breakfast. In the solitary and parallel play categories, the handicapped subjects who ate breakfast had higher mean scores. There were no frequencies recorded in the onlooking category for handicapped subjects with or without breakfast, therefore no mean scores were recorded.

According to this study, handicapped subjects with no breakfast had higher frequencies of play interactions in the associative and cooperative categories of play with classmates, than did the handicapped subjects who ate breakfast. Those who ate breakfast had the highest mean scores of frequency of play in the solitary and parallel categories.

Further study is needed to determine the relationship between breakfast and play relationships in the classrooms of young children, both handicapped and nonhandicapped.

INSTRUMENT A

EVALUATION OF CLASSROOM SITES

Designed by Dr. Doris Sponseller
Revised by Anne Cairns-Federlein

I Name of Site: _____

Type of Program _____

II Location

a. Type of area served by site

1. Inner city
2. Suburban
3. Rural
4. University

b. Type of building

1. Public School
2. Church
3. Community Building
4. Own Building

III Equipment

a. General Rating

	Amount			Availability and Use		
	3 exc.	2 adeq.	1 poor	3 exc.	2 adeq.	1 poor
1. Lg muscles						
2. Dramatic play						
3. Science						
4. Small muscle						
5. Perceptual						
6. Music						
7. Art						
8. Readiness						
9. Books						
10. Furniture						
11. Outdoor play eqpt.						
12. Sand						
13. Water						

Instrument A -continued

b. Use of space-arrangement

excellent
adequate
so so
not adequate
poor

IV Program

a. Type of program

1. Federally financed

parent child center
day care
Head Start

2. Public School

day care
preschool segregated
university or college

3. Private

individually owned day care or nursery
cooperative nursery
church sponsored day care or nursery
community sponsored nursery or day care

4. Philosophy of Program

developmental
therapeutic
language based

5. Was this a typical day? Yes___ No___

b. Target Population

1. Income level

low
middle
high
mixed

Instrument A -continued

2. Racial composition

one race
biracial
multiracial

3. Age Levels Served

under two years
two-five years

4. Special Qualities

emotionally impaired
physically impaired
hearing impaired
nonhandicapped
combination - nonhandicapped and handicapped

c. School Day

1. Less than 3 hours
2. 3-5 hours
3. 6-8 hours

d. Structure of Daily Program

1. Very rigid
2. Somewhat rigid
3. Moderate structure
4. Little structure
5. Very little structure

e. Developmental and Educational Focus of Program - Overall Rating

	Extent and Strength				
1. Cognitive	1	2	3	4	5
2. Language	1	2	3	4	5
3. Readiness	1	2	3	4	5
4. Social emotional	1	2	3	4	5
5. Perceptual	1	2	3	4	5
6. Creative	1	2	3	4	5
7. Scientific	1	2	3	4	5
8. Physical/Motor skills	1	2	3	4	5

Instrument A - continued

V Personnel

a. Qualifications of staff in specific group

	Number in each category
1. MA	_____
2. BA	_____
3. 2 years of college	_____
4. Paraprofessional	_____

b. Team relationship in a specific group

	Number of each
1. Director	_____
2. Teacher	_____
3. Aide	_____
4. Parent	_____

c. Usual Adult-Child ratio

1. 1-3 or under
2. 1-4
3. 1-5
4. above 1-5

INSTRUMENT B

PARTEN SOCIAL PLAY CATEGORIES AND PIAGETIAN LEVELS OF PLAY TEST

	Social Play Categories							Piagetian Levels		
Observation	C.I.	A.I.	On-looking	Solitary	Parallel	Associative	Cooperative	Practice	Symbolic	Games With Rules
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

Name of Child _____ Birthdate _____

Observations will be recorded every three minutes.

INSTRUMENT C

BREAKFAST CHECKLIST

_____ Eggs

_____ Bacon

_____ Sausage

_____ Milk [ ] Homoginized [ ] Lo fat [ ] Skim

_____ Juice - Kind _____

_____ Bread/toast _____ white _____ whole wheat _____ other

_____ Cereal _____ sugared _____non-sugared

_____ Pancakes _____ Waffles _____ French Toast

_____ Butter _____ syrup _____ honey _____ jam

List other items not checked above:

_____ _____

_____

_____

_____ No breakfast

NAME OF CHILD _____ Birthdate _____

Information given by _____

Recorded by _____

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